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(54) Title: **PROTEIN MICRO-ARRAYS AND MULTI-LAYERED AFFINITY INTERACTION DETECTION**

(57) **Abstract:** The present invention provides proteomic techniques that extend sensitive and quantitative analysis of proteins to post-translational modifications. Protein micro-arrays and/or multiplex coded-microbeads are used in combination with multilayered affinity interaction detection (MAID) methods that permit high throughput analysis of cellular protein modifications and functional protein interactions.